CLAIMS

1. An apparatus to treat a sphincter, comprising:

a support member; and

a sphincter electropotential mapping device including a mapping electrode, the sphincter electropotential mapping device being coupled to the support member and configured to detect one of an aberrant neuroelectric or myoelectric activity of the sphincter.

2. The apparatus of claim 1, further comprising:

a treatment electrode coupled to the sphincter electropotential mapping device.

3. The apparatus of claim 1, wherein the sphincter electropotential mapping device detects an electrical foci of one of the aberrant neuroelectric or the myoelectric activity of the sphincter.

4. The apparatus of claim 2, wherein the sphincter electropotential mapping device detects an electrical foci of the aberrant myoelectric activity of the sphincter.

5. The apparatus of claim 3, wherein the mapping electrode delivers sufficient energy to treat the foci.

6. The apparatus of claim 4, wherein the treatment electrode delivers sufficient energy to treat the foci.

7. The apparatus of claim 1, wherein the sphincter electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the sphincter.

8. The apparatus of claim 2, wherein the sphincter electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the sphincter.

9. The apparatus of claim 7, wherein the mapping electrode delivers sufficient energy to treat the pathway.

10. The apparatus of claim 8, wherein the treatment electrode delivers sufficient energy to treat the pathway.

11. The apparatus of claim 1, wherein the sphincter is a lower esophageal sphincter.

12. The apparatus of claim 11, wherein the sphincter electropotential mapping device detects an electrical foci of the aberrant myoelectric activity of the lower esophageal sphincter, and the mapping electrode creates a lesion at the foci to reduce a duration of lower esophageal sphincter relaxation.

13. The apparatus of claim 11, wherein the sphincter electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the of the lower esophageal sphincter, and the mapping electrode creates a lesion to treat the pathway.

14. The apparatus of claim 11, wherein the mapping electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

15. The apparatus of claim 11, wherein the mapping electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of a symptom of reflux of stomach contents into an esophagus.

16. The apparatus of claim 11, wherein the mapping electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce an incidence of a sequela of reflux of stomach contents into an esophagus.

17. The apparatus of claim 11, wherein the mapping electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a duration of lower esophageal sphincter relaxation.

18. The apparatus of claim 11, wherein the mapping electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

19. The apparatus of claim 2, wherein the sphincter is a lower esophageal sphincter.

20. The apparatus of claim 19, wherein the sphincter electropotential mapping device detects an electrical foci of the aberrant myoelectric activity of the lower esophageal sphincter, and the treatment electrode creates a lesion at the foci to reduce a duration of lower esophageal sphincter relaxation.

21. The apparatus of claim 19, wherein the sphincter electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the of the lower esophageal sphincter, and the treatment electrode creates a lesion to treat the pathway.

22. The apparatus of claim 19, wherein the treatment electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

23. The apparatus of claim 19, wherein the treatment electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of a symptom of reflux of stomach contents into an esophagus.

24. The apparatus of claim 19, wherein the treatment electrode creates a lesion in the lower esophageal sphincter in response to the

detection of the aberrant myoelectric activity, to reduce an incidence of a sequela of reflux of stomach contents into an esophagus.

25. The apparatus of claim 19, wherein the treatment electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a duration of lower esophageal sphincter relaxation.

26. The apparatus of claim 19, wherein the treatment electrode creates a lesion in the lower esophageal sphincter in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

27. The apparatus of claim 1, further comprising:

a feedback control device coupled to the sphincter electropotential mapping device.

28. The apparatus of claim 2, further comprising:

a feedback control device coupled to the sphincter electropotential mapping device.

29. The apparatus of claim 1, further comprising:

a feedback control device coupled to the sphincter electropotential mapping device and an energy source.

30. The apparatus of claim 2, further comprising:

a feedback control device coupled to the sphincter electropotential mapping device, the treatment electrode and an energy source.

31. The apparatus of claim 2, wherein the sphincter electropotential mapping device includes a plurality of mapping electrodes and a plurality of treatment electrodes distributed on a surface of the support member.

32. The apparatus of claim 31, wherein the plurality of mapping electrodes and plurality of treatment electrodes are radially distributed along a surface of the support member.

33. The apparatus of claim 31, wherein the plurality of mapping electrodes and the plurality of treatment electrodes are longitudinally distributed along a surface of the support member.

34. The apparatus of claim 1, wherein the sphincter electropotential mapping device covers a portion of a surface of the support member.

35. The apparatus of claim 1, wherein the sphincter electropotential mapping device covers substantially all of an exterior surface of the support member.

36. The apparatus of claim 1, wherein the sphincter electropotential mapping device is sized to be positionable in a sphincter and

allow the sphincter electropotential mapping device to contact at least a portion of an internal surface of the sphincter.

37. The apparatus of claim 1, where the sphincter electropotential mapping device is sized to be positionable in the sphincter and non-permanently dilate the sphincter.

38. The apparatus of claim 2, wherein the sphincter electropotential mapping device covers a portion of a surface of the support member.

39. The apparatus of claim 2, wherein the sphincter electropotential mapping device covers substantially all of an exterior surface of the support member.

40. The apparatus of claim 2, wherein the sphincter electropotential mapping device is sized to be positionable in a sphincter and allow the sphincter electropotential mapping device to contact at least a portion of an exterior surface of the sphincter.

41. The apparatus of claim 2, where the sphincter electropotential mapping device is sized to be positionable in the sphincter and non-permanently dilate the sphincter.

42. An apparatus to treat a stomach, comprising:

a support member; and

a stomach electropotential mapping device including a mapping electrode, the stomach electropotential mapping device being coupled to the support member and configured to detect one of an aberrant neuroelectric or a myoelectric activity of the stomach.

43. The apparatus of claim 42, wherein the stomach electropotential mapping device detects one of an aberrant neuroelectric or a myoelectric activity of a stomach cardia.

44. The apparatus of claim 42, further comprising:

a treatment electrode coupled to the stomach electropotential mapping device.

45. The apparatus of claim 42, wherein the stomach electropotential mapping device detects an electrical foci of one of the aberrant neuroelectric or the myoelectric activity of the stomach.

46. The apparatus of claim 42, wherein the stomach electropotential mapping device detects an electrical foci of the aberrant myoelectric activity of the stomach.

47. The apparatus of claim 46, wherein the mapping electrode delivers sufficient energy to treat the foci.

48. The apparatus of claim 47, wherein the treatment electrode delivers sufficient energy to treat the foci.

49. The apparatus of claim 42, wherein the stomach electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the stomach.

50. The apparatus of claim 44, wherein the stomach electropotential mapping device detects an electrically conductive pathway of the aberrant myoelectric activity of the stomach.

51. The apparatus of claim 49, wherein the mapping electrode delivers sufficient energy to treat the pathway.

52. The apparatus of claim 50, wherein the treatment electrode delivers sufficient energy to treat the pathway.

53. The apparatus of claim 43, wherein the mapping electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

54. The apparatus of claim 43, wherein the mapping electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of a symptom of reflux of stomach contents into an esophagus.

55. The apparatus of claim 42, wherein the mapping electrode creates a lesion in the stomach in response to the detection of the aberrant

myoelectric activity, to reduce an incidence of a sequela of reflux of stomach contents into an esophagus.

56. The apparatus of claim 42, wherein the mapping electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

57. The apparatus of claim 43, wherein the treatment electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

58. The apparatus of claim 43, wherein the treatment electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of a symptom of reflux of stomach contents into an esophagus.

59. The apparatus of claim 43, wherein the treatment electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce an incidence of a sequela of reflux of stomach contents into an esophagus.

60. The apparatus of claim 43, wherein the treatment electrode creates a lesion in the stomach in response to the detection of the aberrant myoelectric activity, to reduce a frequency of reflux of stomach contents into an esophagus.

61. The apparatus of claim 42, further comprising:

a feedback control device coupled to the stomach electropotential mapping device.

62. The apparatus of claim 43, further comprising:

a feedback control device coupled to the stomach electropotential mapping device.

63. The apparatus of claim 42, further comprising:

a feedback control device coupled to the stomach electropotential mapping device and an energy source.

64. The apparatus of claim 43, further comprising:

a feedback control device coupled to the stomach electropotential mapping device, the treatment electrode and an energy source.

65. The apparatus of claim 43, wherein the stomach electropotential mapping device includes a plurality of mapping electrodes and a plurality of treatment electrodes distributed on a surface of the support member.

66. The apparatus of claim 65, wherein the plurality of mapping electrodes and plurality of treatment electrodes are radially distributed along a surface of the support member.

67. The apparatus of claim 65, wherein the plurality of mapping electrodes and the plurality of treatment electrodes are longitudinally distributed along a surface of the support member.

68. The apparatus of claim 42, wherein the stomach electropotential mapping device covers at least a portion of a surface of the support member.

69. The apparatus of claim 42, wherein the stomach electropotential mapping device covers substantially all of an exterior surface of the support member.

70. The apparatus of claim 42, wherein the sphincter electropotential mapping device is sized to be positionable in a stomach and allow the stomach electropotential mapping device to contact at least a portion of an interior surface of the stomach.

71. The apparatus of claim 43, wherein the stomach electropotential mapping device covers at least a portion of a surface of the support member.

72. The apparatus of claim 43, wherein the stomach electropotential mapping device covers substantially all of an exterior surface of the support member.

73. The apparatus of claim 43, wherein the stomach electropotential mapping device is sized to be positionable in a stomach and

allow the stomach electropotential mapping device to contact at least a portion of an interior surface of the stomach.